

## Index for Volume 38, 1985

### A

- Abernethy, Rollin H., 331  
Above-ground biomass and nitrogen quantities in a big sacaton [*Sporobolus wrightii*, grassland], 273  
Abrams, Marc D., 556  
*Acacia constricta*, 391  
*Acacia* (whitethorn), 391  
*Acacia rigidula*, 228  
*Acanthoscelides fraterculus* (Horn), 400  
*Acer rubrum*, 432  
Adams, J.C., 492  
*Agropyron cristatum*, 177, 226, 403  
*Agropyron desertorum*, 39, 177, 195, 65, 551  
*Agropyron elongatum*, 126, 270  
*Agropyron intermedium*, 39  
*Agropyron smithii*, 7, 16, 37, 103, 121, 325, 461, 522  
*Agropyron spicatum*, 21  
*Agropyron* spp., 252, 440  
Air quality, 16  
Alkali sacaton, 325  
Allison, C.D., 305  
Alwash, A.A., 291  
*Amelanchier alnifolia*, 458  
*Amelanchier utahensis*, 167  
Amino acids, 406  
*Andropogon gerardii*, 33, 406, 556  
*Andropogon hallii*, 504  
Animal husbandry, 159  
Animal nutrition, 139, 144, 154, 163, 167  
Animal-unit and animal-unit-equivalent concepts in range science, 346  
Animal unit month, 346  
Ansley, R. James, 331  
Application of herbicides on rangelands with a carpeted roller: evaluation of four herbicides for control of honey mesquite, 233  
*Aristida longiseta*, 44  
*Artemisia frigida*, 487  
*Artemisia nova*, 278  
*Artemisia tridentata*, 56, 131, 167, 195, 258  
Assay, Kay H., 254  
*Atriplex canescens*, 258, 443, 562  
*Atriplex gardneri*, 33  
Austin, Dennis D., 167  
Automated rainout shelter for controlled water research, 353  
Awnless bushsunflower, 336  
*Axis*, 435, 546

### B

- Bacteria (soil), 492  
Bade, D.H., 321  
Baits (poison), 483  
Balph, David F., 226  
Barr, William, 44  
Barrett, Reginald H., 435, 546  
Balsam poplar, 370  
Basal area, 339  
Baskin, Carol C., 513  
Baskin, Jerry N., 513  
Baumgartner, R.E., 7  
*Beckmannia syzigachne*, 114  
Bedunah, Donald J., 200  
Beef production, 395  
Beetles (seed), 400  
Behan, Barbara, 278  
Behavior (cattle), 205  
Benzyl alcohol, 370  
Beta attenuation, 556  
*Betula papyrifera*, 370

- Biomass analysis, 273, 556  
Biomass production, 504  
Bjorge, Ronald R., 483  
Black, Hal L., 11  
Black sagebrush: mule deer winter preference and monoterpenoid content, 278  
Blackbrush, 228, 535  
Blackburn, W.H., 283  
Bluebunch wheatgrass, 21  
Bluegrass, 121, 516  
Bluestem (big), 406, 556  
Bluestem (creeping), 531  
Bluestem (Old World), 27, 37, 504  
Bluestem (Pretoria 90), 242  
Boe, A., 114, 400  
Boertje, Rodney D., 468  
Bohn, C.C., 378  
Bokhari, V.G., 37  
Bonham, Charles D., 428  
Book reviews  
Introduction to plant population ecology, 95  
Mycorrhizal symbiosis, 190  
Fire in forestry. Volume I: Forest fire behavior and effects; Fire in forestry. Volume II: Forest fire management and organization, 288  
Emerging technology and management for ruminants, 382  
Winter ecology of small mammals, 479  
International rangeland resources development symposium proceedings, 480  
Management of Australia's rangelands; Las Gramineas de Mexico. Tomo I; North American game birds and mammals, 565  
Physiology and biochemistry of drought resistance in plants; Behavior of domestic animals, 566  
Booth, Terrance, 562  
Boron, 270  
Botanical composition, 47, 51, 108, 262, 526  
*Bothriochloa*, spp., 27, 37, 504  
*Bouteloua curtipendula*, 372  
*Bouteloua gracilis*, 7, 121, 295, 325, 339, 410, 443, 487, 504, 522, 539, 543  
Bowden, David C., 458  
Bowman, R.A., 325, 497  
Bowns, James E., 299, 535  
Bradford, J.A., 27, 504  
Brady, Ward W., 135  
Bristlegrass, 342  
*Bromus inermis*, 33  
Brooke, Barbara, 276, 312  
Brotherson, Jack D., 535  
Brown, John C., 195  
Brown, Robert D., 154  
Browse, 443  
Browse quality response to forest fertilization to soils in Florida, 432  
Brush management, 535  
Bryant, F.C., 163  
*Buchloe dactyloides*, 121  
Buckhouse, J.C., 378  
Budgets (energy), 468  
Buffalograss, 121  
Buffelgrass, 242, 295  
Bundleflower, 500  
Burning (prescribed), 47, 283, 362, 531, 535

### C

- Cain, J.R., 342  
*Calamagrostis rubescens*, 276, 312  
Caldwell, Richard M., 108  
Call, C.A., 258, 336, 500

- Callison, Jim, 535  
*Canis latrans*, 418  
*Canis lupus*, 483  
Cannula (esophageal), 474  
Cardenas, Manuel, 450  
*Carex* spp., 440  
Carrying capacity, 395  
Cattle behavior, 177, 226, 295  
Cattle diets, 450  
Cattle diets in a ponderosa pine forest in the northern Black Hills, 440  
Cattle diets on shortgrass ranges with different amounts of fourwing saltbush, 443  
Cattle grazing blue grama rangeland I. seasonal diets and rumen fermentation, 539  
Cattle grazing blue grama rangeland II. seasonal forage intake and digesta kinetics, 543  
Cattle trampling of crested wheatgrass under short-duration grazing, 226  
Cattle use of riparian meadows in the Blue Mountains of northeastern Oregon, 205  
*Cenchrus ciliaris*, 242  
*Cercocarpus montanus*, 458  
Changes in diets of wapiti during a hunting season, 77  
*Charadrius montanus*, 280  
*Chrysothamnus nauseosus*, 258  
Cineola, 370  
Clark, Richard C., 443  
Clary, Warren P., 56  
Clipping, 16, 21, 100, 103  
Clipping frame, 287  
Clopyralid, 233  
Cluff, Greg J., 551  
Coastal bermudagrass, 321  
*Coleogyne ramosissima*, 535  
Color infrared film, 228  
Comparison of heifer weight gains and forage quality for continuous and short-duration grazing systems, 144  
Comparison of the reference unit method and dimensional analysis methods for two large shrubby species in the Caatinga woodlands, 425  
Conrad, B.E., 321  
Contour furrows, 7  
Controlling shrubs in the arid southwest with tebuthiuron, 391  
Coppinger, R.P., 560  
Cottonwood (Fremont), 135  
Cover (basal), 247  
Cover (ground), 325  
Cox, Jerry R., 273, 372  
Coyote, 418  
Coyote predation, 11, 418  
Coyne, P.I., 27, 504  
Crane, R.A., 233  
Creosotebush, 391  
Crested wheatgrass, 7, 16, 365  
*Cynodon dactylon*, 321

### D

- Dally, M.R., 291  
Dama, 435, 546  
*Danthonia parryi*, 220  
Data collection, 353  
Decline of the angora goat industry in three Texas counties, 158  
Deer and cattle diet overlap, 435, 546

Deer (mule), 163, 167, 278  
 Defoliation, 21, 100, 103  
 Degree of use, 299  
 Denitrification, 487, 492  
 Denitrification and bacterial numbers in riparian soil of a Wyoming mountain watershed, 492  
 DePeters, E.J., 291  
 DePuit, E.J., 262  
*Desmanthus illinoensis*, 500  
 Detling, J.K., 16  
 Dicamba, 149, 386  
*Dichanthium annulatum*, 242  
 Dietary overlap amongst axis, fallow, and black-tailed deer and cattle, 546  
 Digestibility of forage, 370  
 Digestion (cattle), 539, 543  
 Digestion trials, 171, 180  
 Discing, 121  
 Discing and seeding effects on sod bound mixed prairie, 121  
*Distichlis stricta*, 325, 497  
 Dodd, J.L., 16  
 Doescher, Paul, 317  
 Dogs, 560  
 Dormaar, J.F., 220, 487  
 Dormancy breaking and germination requirements of nimble will (*Muhlenbergia schreberi* Gmel.) seeds, 513  
 Douglasfir, 214  
 Dowhower, S.L., 90, 185  
 Dropseed, 44  
 Drought, 37  
 Drought resistance, 372, 406  
 Duncan, Don A., 108

## E

Easton, E.R., 251  
 Economic returns from burning tobosagrass in the Texas rolling plains, 362  
 Eddleman, Lee E., 117  
 Edge, Daniel, 280  
 Effect of early winter or spring burning on runoff, sediment, and vegetation in the post oak savannah of Texas, 283  
 Effect of forage depletion on the feeding rate of wapiti, 80  
 Effect of jointworms on the growth and reproduction of four native range grasses of Idaho, 44  
 Effective fecal harness for free-grazing goats, 184  
 Effects of clipping on burned and unburned creeping bluestem, 531  
 Effects of controlling black-tailed prairie dogs on plant production, 466  
 Effects of fire on the blackbrush (*Coleogyne ramosissima*) community of southwestern Utah, 535  
 Effects of forage availability on grazing behavior of heifers, 177  
 Effects of hunger satiation on diet quality by grazing sheep, 302  
 Effects of moisture and temperature on germination of Idaho fescue, 317  
 Effects of jackrabbit grazing, clipping, and drought on crested wheatgrass seedlings, 551  
 Effects of regulated water flow on regeneration of fremont cottonwood, 135  
 Effects of sagebrush control methods and

seeding on runoff and erosion, 195  
 Effects of secondary metabolites from balsam poplar and paper birch on cellulose digestion, 370  
 Effects of selected seed treatment on germination rates of five range plants, 415  
 Effects of stocking rate on a rough fescue grassland vegetation, 220  
 Effects of sulfur fertilization on productivity and botanical composition of California annual grassland, 108  
 Effects of tillage and manure on emergence and establishment of Russian wildrye in a saltgrass meadow, 497  
 Elliott III, Henry W., 546  
 Elk, 370  
*Elymus cinereus*, 126, 270  
*Elymus junceus*, 403, 497  
*Elytrigia repens*, 252  
 Emergence and survival response of seven grasses for six wet-day sequences, 372  
 Emergence establishment of basin wildrye and tall wheatgrass in relation to moisture and salinity, 126  
 Energy expenditure (caribou), 468  
 Endomycorrhizae enhance growth of shrub species in processed oil shale and disturbed native soil, 258  
 Energy model for adult female caribou of the Denali herd, Alaska, 468  
 Environmental factors influencing Gardner saltbush seed dormancy alleviation, 331  
*Eragrostis* spp., 372, 415  
 Erosion, 195, 283  
 Esophageal fistula plug, 185  
 Ethridge, D.E., 362  
 Estimation of fecal output and particulate passage rate with a pulse dose of Ytterbium-labeled forage, 180  
*Euphorbia esula*, 149, 386  
 Evaluation and management of grasses for dual livestock and game bird use, 342  
 Evaluation of beta attenuation for estimating aboveground biomass in a tallgrass prairie, 556  
 Evaluation of fecal indices to predict cattle diet quality, 450  
 Evaluation of pedometers for measuring distance traveled by cattle on two grazing systems, 90  
 Evaluation of wolf control to reduce cattle predation in Alberta, 483  
 Evans, Raymond A., 195, 551  
 Evenson, P.D., 251  
 Everitt, J.H., 228, 421  
 Ewing, A.L., 455

## F

Factors affecting forage intake by range ruminants: A review, 305  
 Factors influencing patterns of cattle grazing behavior on shortgrass steppe, 82  
 Factors influencing selection of resting sites by cattle on shortgrass steppe, 295  
 Fecal analyses, 350  
 Fecal index technique, 450  
 Fecal sampling, 184  
 Fenner, Pattie, 135  
 Fertilization (forest), 432  
 Fertilization (N.P.K.), 455, 461  
 Fertilization (range), 238, 242

Fertilization (sulfur), 108  
 Fescue (rough), 100, 220  
 Fescue (tall), 455  
*Festuca arundinaceae*, 37, 455  
*Festuca scabrella*, 100, 220  
 Field environment, 353  
 Fistula esophageal, 474  
 Fistula rumen, 185  
*Flourensia cernua*, 391  
 Food habits and distribution of cattle on a forest and pasture range in northern Idaho, 214  
 Food habits (wildlife), 458  
 Forage (available), 177  
 Forage intake, 305, 543  
 Forage management, 342  
 Forage production, 108, 342, 400, 466  
 Forage quality, 154, 167, 210, 342, 458  
 Forage resources, 365  
 Forage responses of buffelgrass and 'Pretoria 90' bluestem to nitrogen and phosphorus fertilization on a subtropical climate, 242  
 Forage selection, 440, 443  
 Forage use by cattle and sheep grazing separately and together on summer range in southwestern Utah, 299  
 Forage yields, 238, 321  
 Forages (harvested), 33  
 Forest grazing, 214  
 Forwood, J.R., 61, 70, 171  
 Fourwing saltbush, 562  
 Frasier, G.W., 187, 372  
 Freshwater marsh, 287  
 Fulbright, Timothy E., 266, 410

## G

Galyean, M.L., 180, 210, 450, 539, 543  
 Gardiner, H.D., 231  
 Garzia, Jr., N.E., 283  
 Gates, R.N., 121  
 Germination and seedling growth of tall wheatgrass and basin wildrye in relation to boron, 270  
 Germination characteristics of *Helianthus maximiliani* Schrad. and *Simsia calva* (Engelm. & Gray) Gray, 336  
 Germination forage yield, and seed production of American sloughgrass (*Beckmannia syzigachne*), 114  
 Germination response of greasewood (*Sarcobatus vermiculatus*) to temperature, water potential, and specific ions, 117  
 Germination of greasewood, 117  
 Germination of Idaho fescue, 317  
 Germination of saltbush, 331  
 Germination of sloughgrass, 114  
 Germination of sunflowers, 336  
 Gibbens, Robert P., 391  
 Gillen, R.L., 205  
*Glycyrrhiza lepidota* Pursh, 400  
 Glyphosate, 149, 233  
 Goats, 158, 184  
 Godfrey, E. Bruce, 238  
 Godrich, Sherel, 56  
 Gorz, H.G., 477  
 Grama (blue), 7, 121, 295, 325, 339, 410, 443, 487, 504, 522, 539, 543  
 Grassbugs (black), 252  
 Grazing effects, 226, 466  
 Grazing habits, 177, 299, 302  
 Grazing intensity, 357, 378, 558

Grazing patterns, 51  
 Grazing resistance, 276  
 Grazing use, 205  
 Greasewood, 117, 258  
 Green, Jeffrey S., 11  
 Green needlegrass and blue grama seedling growth in controlled environments, 410  
 Green needlegrass seedling morphology in relation to planting depth, 266  
 Griffith, L.W., 7  
 Growth and development of pinegrass in interior British Columbia, 312  
 Growth parameter differences between populations of blue grama, 339  
 Growth rate of grasses, 27, 339, 410  
 Guard dogs, 11, 560  
 Gunson, John R., 483

## H

Habitat types, 317  
 Hansen, James D., 254  
 Hansen, Richard M., 443  
 Hart, M., 121  
 Hart, R.H., 103, 522  
 Harvey, A.J., 492  
 Haskins, F.A., 477  
 Hassan, M.A., 131  
 Hawkins, Richard H., 20  
 Hayes, D.C., 406  
 Hayes, John R., 418  
 Heitschmidt, R.K., 90, 185  
*Helianthus maximiliana*, 336  
 Hendler, R.J., 342  
 Herbage yields, 522  
 Herbel, Carlton H., 391  
 Herbicide application, (roller), 233  
 Herbicides (tebuthiuron), 56  
*Hilaria mutica*, 362  
 Holecek, Jerry L., 350, 450  
 Holt, E.C., 321, 342  
 Hoverson, R.R., 242  
 Howard, Walter E., 418  
 Hudson, Robert J., 77, 80  
 Hoffman, Anthony H., 94  
 Hulbert, Lloyd C., 556  
 Hunger satiation, 302  
 Hunter, D.H., 531  
 Hussey, M.R., 492  
 Hypothesis testing, 428

## I

*Ilex glabra*, 432  
 Impact of SO<sub>2</sub> exposure on the response of *Agropyron smithii* to defoliation, 16  
 Indigo (western), 500  
*Indiofera miniata*, 500  
 Infiltration rate, 200  
 Influence of canopy characteristics of one-seed juniper on understory grass, 328  
 Influence of season and intensity of defoliation on bluebunch wheatgrass survival and vigor in southern British Columbia, 21  
 Influence of several range improvements on estimated carrying capacity and potential beef production, 395  
 Influence of site manipulation on infiltration rates of a depleted west Texas range site, 200  
 Inkberry, 432  
 Insect damage, 44, 400  
 Insects (face fly), 251  
 Intake and diet selection, by protein supplemented grazing steers, 210  
 Investment rationale for range improvement practices in eastern Montana, 2  
 Irrigation, 33

## J

Jackrabbit grazing, 551  
 Jacoby Jr., Pete W., 94  
 Jointworms, 44  
 Jones, K.D., 210  
 Jordan, Gilbert L., 415  
 Judkins, M.B., 139, 210  
 Jung, H.G., 144, 302  
 Juniper, 328  
 Juniper (Utah), 56  
*Juniperus monosperma* (Engelm.), 328  
*Juniperus osteosperma*, 56

## K

Kalmbacher, R.S., 531  
 Kellogg, Elizabeth Anne, 516  
 Kelrick, Michael Ira, 65  
 Kirmse, Robert D., 425  
 Kleingrass, 200, 321, 342  
 Knapp, Alan K., 556  
 Koerth, B.H., 163  
 Koong, L.J., 144, 302  
 Krueger, W.C., 205  
 Krysl, L.J., 180, 210, 539  
 Kufeld, Roland C., 458

## L

*Labobs hesperius* (Uhler), 252  
 Lacey, John R., 2  
 Lambing, 291  
*Larrea tridentata*, 391  
 Lauenroth, W.K., 16  
 Launchbaugh, John L., 51  
 Laycock, W.A., 443  
 Leaf area, 504  
 Leafy spurge, 149, 386  
 Leafy spurge control and improved forage production with herbicides, 386  
 Leafy spurge control with herbicides in North Dakota 20-year summary, 149  
*Leptochloa dubia*, (H.B.K.), 185  
 Licorice (American), 400  
 Linear programming, 365  
 Long-term residual effects of nitrogen fertilization on western wheatgrass, 461  
 Lovegrasses, 37, 415  
 Lowry, S.R., 121  
 Lym, R.G., 149, 386  
 Lysyk, T.J., 251

## M

MacMahon, James A., 65  
 Magnification and shrub stemmy material influences on fecal analysis accuracy, 350  
 Malechek, John C., 177, 226  
 Manure, 251  
 Martin, F.G., 531  
 Mayeux, H.S., Jr., 233  
 McAdoo, J. Kent, 551  
 McCollum, F.T., 180, 539, 543  
 McGinnies, W.J., 325, 497  
 McKell, C.M., 258  
 McLean, Alastair, 21, 100  
 McMurphy, W.E., 455  
 Mechanical renovation of shortgrass prairie for increased herbage production, 7  
 Menke, John W., 108  
 Messersmith, Calvin G., 149, 386  
 Mesquite (honey), 200, 233, 391  
 Meyer, Michael W., 154  
 Microhistological techniques, 350  
 Milchunas, D.G., 16  
 Miller, L., 560  
 Miller, R.T., 205  
 Miller, Richard, 317  
 Mine spoil reclamation, 258, 262

Mineral requirements (animals), 139  
 Mitchell, John E., 214  
 Mitchell, R.L., 455  
 Mixed prairie, 357  
 Modified procedure for esophageal fistulation of sheep, 88  
 Moisture stress, 126  
 Monoterpenoid content, 278  
 Morgantini, Luigi E., 77, 370  
 Morphology and growth in seedlings of several C<sub>4</sub> perennial grasses, 504  
 Morton, Howard L., 391  
 Moser, Lowell E., 33  
 Mountainmahogany, 458  
 Mueller, D.M., 325, 497  
*Muhlenbergia schreberi*, 513  
 Mulch, 247, 262  
 Murphy, Alfred H., 418  
*Musca autumnalis*, 251  
 Mycorrhizae, 258

## N

N, P, and K fertilization of tall fescue (*Festuca arundinacea* Schreb.) overseeded range in eastern Oklahoma, 455  
 Narrowband filter, 421  
 Nastis, Anastasios, 177  
 Navajo use of mixed-breed dogs for management of predators, 11  
 Needleandthread, 7, 44  
 Needlegrass (green), 39, 185, 266, 410  
 Nest site selection by mountain plovers in northcentral Montana, 280  
 Nesting of plovers, 280  
 New esophageal plug, 185  
 Nicholson, Robert A., 51  
 Nielson, Dale C., 254  
 Nietfeld, M.T., 80  
 Nimble will, 513  
 Nitrogen, 33  
 Nitrogen content of manure, 251  
 Nitrogen translocation, 406  
 Nixon, P.R., 421  
 Nontarget kill, 483  
 Norton, Brien E., 231, 425  
 Nutrient content, 154, 163, 210, 450  
 Nutrient cycling, 406  
 Nutrient removal rates from ruminoreticula of cattle grazing Kansas Flint Hills range, 70  
 Nutrient uptake (plants), 325  
 Nutritive value, 432  
 Nutrients (digestible), 461  
 Nutrition of range ruminants, 305  
 Nutritive value of tree leaves in the Kansas Flint Hills, 61  
 Nutritional and physical attributes of seeds of some common sagebrush steppe plants: some implications for ecological theory and management, 65

## O

Oak (gambel), 167  
 Observation on why mongrels may make effective livestock protecting dogs, 560  
 O'Connor, K.T., 88  
*Odocoileus*, 154, 163, 167, 278, 435, 546  
 Olson, Kenneth C., 357  
 Olson, Sally L., 280  
 Owens, D.W., 336  
 Owens, M.K., 231  
 Owensby, C.E., 61, 70, 171

## P

Paintner, Wayne W., 440  
*Panicum antidotale*, 372  
*Panicum coloratum*, 200, 321

*Panicum virgatum*, 33, 185, 504  
 Papanastasis, Vasilios P., 247  
 Papyriferic acid, 370  
 Parker, E.E., 139, 210  
 Particle size changes in rumens of cattle grazing Kansas Flint Hills range, 171  
 Patton, David R., 135  
 Performance and phosphorus status of range cows with and without phosphorus supplementation, 139  
 Petersen, Joseph L., 33  
 Pfister, James A., 184  
 Pieper, R.D., 328  
 Phosphorus, 139, 154  
 Photographic technique for repeated mapping of rangeland plant populations in permanent plots, 231  
 Photographic techniques, 231  
*Physocarpus malvaceus*, 214  
 Picloram, 149, 233, 386  
 Pinchak, B.A., 262  
 Pine (ponderosa), 214  
 Pinegrass, 276, 312  
*Pinus elliottii*, 432  
 Plant associations within the interior valleys of the Umpqua River Basin, Oregon, 526  
 Plant biomass, 425  
 Plant control, 50, 149, 195, 200, 233, 386, 391  
 Plant cover, 357  
 Plant physiology, 312  
 Plant succession, 339  
 Planting depth, 266  
 Plovers (mountain), 280  
 Plowing, 497  
*Poa pratensis*, 121  
*Populus balsamifera*, 370  
*Populus fremontii*, 135  
 Prairie dogs, 210, 466  
 Prairie sod, 121  
 Precipitation (rainfall), 357  
 Precipitation, soils and herbage production on southeast Wyoming range sites, 522  
 Precipitation (use efficiency), 242  
 Precision planter for seedling emergence evaluation, 187  
 Predation, 158, 483  
 Predator control, 11, 418, 560  
 Predicting yield response to nitrogen fertilization on Northern Great Plains rangelands, 238  
 Prescribed burning in the Loess Hills mixed prairie of southern Nebraska, 47  
 President's address, 98  
 Productivity of Russian wildrye and crested wheatgrass and their effect on prairie soils, 403  
 Proline accumulation, 37  
*Prosopis glandulosa*, 200, 391  
*Prosopis juliflora*, 233  
 Protein, (digestible), 276  
 Proline concentrations in water stressed grasses, 37  
*Psathyrostachys junceus*, 39  
*Pseudotsuga menziesii*, 214

## Q

Quackgrass, 252  
 Quality of water for livestock in man-made impoundments in the northern high plains, 74  
*Quercus gambelii*, 167  
*Quercus* spp., 526

## R

Rabbitbrush, 258  
 Ranch economics, 2

Ranch resource differences affecting profitability of crested wheatgrass as a spring forage source, 365  
 Range condition trend, 428  
 Range economics, 2, 362, 365  
 Range improvements, 2, 7, 47, 395  
 Range inventory, 526  
 Range recovery, 220  
 Range sites, 522  
 Range statistics, 428  
 Range terminology, 346  
 Rauzi, F., 7  
 Reclamation, 562  
 Recovery of sagebrush-grass vegetation following wildfire, 131  
 Recovery of vegetative cover and soil organic matter during revegetation of abandoned farmland in a semiarid climate, 487  
 Red maple, 432  
 Redente, Edward F., 266, 410  
 Reference plant method, 425  
 Relationship of stocking intensity and stocking pressure to other stocking variables, 558  
 Remote sensing, 228, 421  
 Renecker, Lyle A., 370  
 Research programs, 477  
 Response of an irrigated cool- and warm-season grass mixtures to nitrogen and harvest scheme, 33  
 Response to tebuthiuron by Utah juniper and mountain big sagebrush communities, 56  
 Response of vegetation of the northern great plains to precipitation amount and grazing intensity, 357  
 Resting model, 295  
 Revegetation, 487  
 Rhizomes and roots below clipped pinegrass tillers have a higher percent carbohydrate when attached to other nonclipped tillers, 276  
 Rice, R.W., 144  
 Ries, R.E., 353  
 Ring II, Charles B., 51  
 Riparian ecosystem, 135, 205, 378, 492  
 Ripping (range), 7  
 Risenhoover, Kenneth L., 370  
 Rittenhouse, L.R., 82, 295  
 Rodgers, J.D., 103  
 Rodgers, Richard T., 214  
 Role of fourwing saltbush in mined land reclamation: a viewpoint, 562  
 Romo, James T., 117  
 Root biomass, 403, 487  
 Rough fescue response to season and intensity of defoliation, 100  
 Roundy, Bruce A., 126, 270, 551  
 Rumble, Mark A., 74  
 Rumen analysis, 171, 180, 539  
 Runoff, 195, 200

## S

Sacaton (big), 273  
 Sage (fringed), 487  
 Sagebrush, 56, 167, 195, 258, 278  
 Sagebrush-grass, vegetation, 131  
 Salt tolerance, 117  
 Saltbush (fourwing), 258, 443  
 Saltbush (Gardner), 331  
 Saltgrass, 325, 497  
 Sampling methods, 171, 180, 231, 287, 350, 425, 474  
 Samuel, M.J., 103, 339, 522  
*Scarbatius vermiculatus*, 117, 258  
 Scarmecchia, David L., 177, 346, 558  
 Schacht, Walter, 47

*Schizachyrium stoloniferum*, 531  
 Schott, M.R., 328  
 Schuman, G.E., 7, 262  
 Screening range grasses for resistance to black grass bugs *Labops hesperius* and *Irbisia pacifica* (Hemiptera: Miridae), 254  
 Scrivner, Jerry H., 158, 418  
 Seasonal changes in nitrogen and moisture content of cattle manure in cool-season pastures, 251  
 Seasonal grazing, 539  
 Seasonal nitrogen translocation in big blue tem during drought conditions, 406  
 Seasonal nutrient estimates of mule deer diets in the Texas panhandle, 163  
 Seasonal trends in the chemical composition of ten range plants in South Texas, 154  
 Seasonal variation in nutrient content, 154  
 Sedges, 440  
 Seed afterripening, 331  
 Seed germination, 415, 513  
 Seed longevity, 500  
 Seed planter, 187  
 Seed predation, seedling emergence, and rhizome characteristics of American licorice, 400  
 Seed production, 342  
 Seed scarification, 331  
 Seed stratification, 331  
 Seeding (range), 187, 195, 121, 336, 365, 415, 500  
 Seedling establishment, 126, 266, 270, 551  
 Seedling survival, 372  
 Selection (forage), 210, 214  
 Selective grazing, 278  
 Senft, R.L., 82, 295  
 Serviceberry, 167, 458  
*Setaria macrostachya*, 342  
 Shane, Ronald L., 365  
 Sheep and deer diet overlap, 299  
 Sheep diet, 291, 302  
 Sheep losses to predators on a California range, 1973-1983, 418  
 Shoop, M.C., 443  
 Short-duration grazing, 144, 226  
 Shortgrass range, 443  
*Simsia calva*, 336  
 Sindelar, Brian W., 357  
*Sitanion hystrix*, 44  
 Site variation in forage qualities of mountain mahogany and serviceberry, 458  
 Skinner, Q.D., 492  
 Slash pine, 432  
 Sloughgrass (American), 114  
 Smith, Benton M., 56  
 Smith, G.K., 560  
 Smith, Winston Paul, 526  
 Smoliak, S., 220, 403, 487  
 Soil analysis, 487  
 Soil and vegetation relationships in a central plains saltgrass meadow, 325  
 Soil nitrogen, 492  
 Soil salinity, 117, 126, 270, 325, 497  
 Solonchets, 325  
 Some growth characteristics of four old world bluestems, 27  
 Some responses of riparian soils to grazing management in northeastern Oregon, 378  
*Sorghastrum nutans*, 33, 185  
 Sosebee, Ronald E., 200  
 Sowell, B.T., 163  
 Spears, Brian M., 44  
 Spielman, Kimberly A., 365  
*Sporobolus airoides*, 325  
*Sporobolus cryptandrus*, 44  
*Sporobolus wrightii*, 273



Sprangletop (green), 342  
 Spurge (leafy), 386  
 Squirreltail, 44  
 Stand establishment (wheatgrasses), 39  
 Standing crop material, 273  
 Standing dead, 273  
 Stevens, E.J., 88  
 Stevens, Marilyn L., 458  
*Stipa comata*, 7, 44  
*Stipa viridula*, 39, 266, 410  
 Stocking rate, 220  
 Stocking terminology, 558  
 Storage life of Illinois bundleflower and western indigo seed, 500  
 Stroud, D.O., 103  
 Stout, Darryl, 276, 312  
 Strychnine, 483  
 Stubbendieck, J., 47  
 Stubble height, basal cover, and herbage production relationships in grassland of northern Greece, 247  
 Stuth, Jerry W., 185  
 Sudderth, R.G., 362  
 Sulfur dioxide, 16  
 Sunflower, Maximilian, 336  
 Supplements (nutrition), 139, 210, 291  
 Svejcar, Tony, 395  
 Synecology, 562

**T**

2, 4-D, 149, 386  
 Tanke, William C., 428  
 Tanner, George W., 432  
 Tarbush, 391  
 Taxonomy, 516  
 Tebuthiuron, 391  
 Temperature and water stress effects on growth of tropical grasses, 321  
 Terry, W.S., 531  
 Therikelsen-Tucker, P., 291  
 Thomson, G.G., 88  
 Threawn, 44  
 Tillers, 312  
 Tilling (vertical axis), 497  
 Tobosagrass, 362  
 Tool for sampling flat-jointed opuntia, 94  
 Topsoil and mulch effects on plant species and community responses of revegetated mined land, 262  
 Towne, G., 70, 171  
 Translocation, 276

Trent, J.D., 37  
 Tricophyr, 233

# U

Understory plant, 328  
 Uresk, Daniel W., 440, 446  
 Urness, Philip J., 167  
 Use of power curves to monitor range trend, 428  
 Use of supplement blocks for sheep grazing dry, annual pastures in California, 291  
 Using aerial photograph for detecting black rush, *Acacia rigidula*, on south Texas rangelands, 228

# V

Valdez, Raul, 350  
 Values of four communities for mule deer on ranges with limited summer habitat, 167  
 Variation and names in the *Poa secunda* complex, 516  
 Vavra, Martin, 395  
 Vegetational traits of patch-grazed rangeland in west-central Kansas, 51  
 Video imagery: A new remote sensing tool for range management, 421  
 Viewpoint: Forage and range research needs in the central Great Plains, 447  
 Viewpoint: Letter on "prediction of sediment yield from Southern Plains Grasslands with the universal soil loss equation" by S.J. Smith, J.R. Williams, R.G. Mengel, and G.A. Coleman, 20  
 Vogel, K.P., 477

# W

Walker, John W., 90, 185  
 Wallace, J.D., 139, 210, 450, 539  
 Waller, S.S., 121

Warm-season plants, 33  
 Water stress (plants), 37, 317, 321, 336, 504  
 Water supply, 135  
 Weaver, Larry C., 415  
 Welch, Bruce L., 278  
 West, Neil E., 131  
 Western wheatgrass responses to simulated grazing, 103  
 Wheatgrass, 37, 39, 103, 121, 126, 177, 195, 226, 252, 270, 325, 403, 440, 461, 533, 551  
 White, L.D., 531  
 White, Larry M., 39, 461  
 White, Richard S., 357  
 Wiedenfield, R.P., 242  
 Wight, J. Ross, 2, 238  
 Wikeem, Sandra, 21, 100  
 Wildfires, 131  
 Wildrye (basin), 126, 270  
 Wildrye (Russian), 39, 403, 497  
 Willms, W.D., 220  
 Wilson, A.M., 226, 410  
 Winward, Alma, 317  
 Wofford, Helen, 450  
 Wolf, 483  
 Wood, John M., 432  
 Woodmansee, R.G., 82, 295  
 Woodward, W.T.W., 242  
 Woolhiser, D.A., 372  
 Workman, John P., 2  
 Wright, J.D., 139  
 Wright, H.A., 362  
 Wynia, R., 114, 400

# Y,Z

Young, James A., 195  
 Ytterbrium, 180  
 Zachmeier, L.G., 353  
 Zinnia (desert), 391  
*Zinnia pumila*, 391